Remarks

Applicants include herewith a Petition for a one month extension of time to reply along with the appropriate fee, and a Request for Continued Examination.

Claim Rejections - 35 USC § 112

1. Claims 5 and 16-20 stand rejected under 35 U.S.C. 112 as being indefinite. Based on patent classification definitions, the Examiner suggests that the term "scrim" is necessarily defined as a "wire mesh" and necessarily requires openings which permit the ability to see through the fabric from a distance. Therefore, The Examiner suggests that the definition of "wire mesh" itself necessarily contradict Applicants' claim language that states that zero percent light may pass through the mesh on the lower end of the range.

Applicants respectfully disagree and hereby provide evidence of the meaning of the term in industry in the attached documents, which is in line with zero light transmission or some percentage of light transmission as claimed by Applicants. Applicants submit that the term "wire mesh" is well known in the wire cloth or wire mesh industry. Applicant did not intend a special definition other than the standard industrial definition, which is documented in the attached documents well known in the wire cloth industry. Applicant has attached documents, labeled A, B, C, D, E, and F, readily found on the Internet, which show that within the industry terms such as "woven wire cloth,""woven wire mesh cloth," wire mesh,""wire screen," and the like are commonly used interchangeably. This is consistent with Applicants' statement on page 29, lines 8-9 "It will be understood that terms such as wire mesh, screen, and the like are used interchangeably herein." This material is commonly sold. One of the very common uses is as "filter material," or "filter cloth" as shown in A, B, C, E, F.

Wire mesh with a 200 nominal micron rating will block all light. Wire mesh with a

nominal micron rating of about 1 micron will not only block all light but will actually hold water. Accordingly, Applicants respectfully submit that the rejection is obviated by the amended claim language. Exactly as now claimed, utilizing the percentage of the openings with respect to the total surface of the area for controlling light through the mesh is quite feasible, not even unusual, and clearly accurate for the stated range beginning at zero percent light passing therethrough.

The woven mesh or wire mesh cloth or filter cloth or filter material may typically be made utilizing various weaves such as "plain weave," "Dutch weave," "Twilled Weave," "Plain Dutch weave," "twilled Dutch weave," and the like. Morever, it is well known that woven material can easily block all light. For example, blindfolds are made of woven material.

If the Examiner desires to further distinguish the type of mesh, although the above common industry usage should be sufficient, Applicant is willing to use "filter material" herein to provide clarification as indicated in claim 1 for the Examiner's comment. Filtration or filter mesh is used interchangeably with filter cloth and is discussed on pages 28, last paragraph and page 31, second paragraph.

2. Claims 5, 16-20, 42-44, and 46-57 are rejected under 35 USC 112 because the terms "zero or substantially zero" were used together. As noted above, there is no reason to include the term "substantially zero" and therefore, this term is deleted.

3. Claims 5, 16-20, 42-44, and 46-47 are rejected under 35 USC 112 because of an apparent internal inconsistency in using the term "permits" and then immediately stating light transmission may be zero.

Accordingly, Applicants have deleted the term "permit" and now state that the device defines openings for "controlling" light.

4. Claims 6 is rejected under 35 USC 112. Applicants appreciate the Examiner's comments, and perhaps the best way to say that the mesh is not chicken wire is simply to say the mesh excludes chicken wire, as claim 6 is now amended to say.

5. Claim 15 stands rejected under 35 USC 112. The Examiner does not find a universally

accepted definition of a "heddle" weave, and indicates that a picture thereof is not shown in the application.

A three-heddle weave is shown in Fig. 2. A five-heddle weave is shown in Fig. 1. Looking more closely at Fig. 1, it will be seen that wire 20A goes over 4 transverse wires and then under the 5th wire. Looking at Fig. 2, it will be seen that wire 26B goes over 2 wires and then under the 3rd wire. The attached documents show the same thing. A five-heddle weave goes over four wires and under the 5th, as shown in the attached documents G and H. The weaves can vary as also shown by the documents from three heddle to five heddle, eight heddle, and so forth as indicated by attached document I. This appears to be a consistent usage of heddle throughout the industry.

6. Claim 21 is rejected under 35 USC 112. It is stated that there is nothing written in the specification that would explain the material being bendable up to a permanent deformation or breaking point by a predetermined amount. Attached is a plasticity graph in document K showing that this description is a common property of many materials. However, this would not include materials like cellophane.

7. Claim 21 is rejected under 35 USC 112. It is stated that there is no support for a non-glass material in the specification. However, on page 23, 2nd paragraph, possible materials for the translucent panels include non-glass materials, such as preferably transparent or translucent panels 14 and 16 that are made of any suitable material such as plastic, lexan, polycarbonates, and acrylics. Since these are non-glass materials, it is believed that the rejection is traversed. However, if the Examiner still feels this is not supported, Applicants are willing to amend the claims to positively set out "plastic."

Claim Rejections - 35 USC § 103

Claims 5,7, 9, 11-12, and 21-22 stand rejected under 35 U.S.C. 102(b) as unpatentable over Eckart et al (US 5998028).

> Establishing anticipation under 35 U.S.C. §102(b) requires that a single prior art reference contain every element recited in the claim in as complete detail as is contained in the claim. "The identical invention must be shown in as complete detail as is contained in the claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir 1989) See also M.P.E.P. (Manual of Patent Examining Procedure) § 2131. Further, "[A]nticipation requires that ... the prior art reference must be enabling, thus placing the alleged disclosed matter in the possession of the public." *Akzo n.v. v U.S. Int'l Trade Commission*, 808 F.2d 1471, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986) (citing *In re Brown*, 329 F.2d 1006, 1011, 141 USPQ 245, 249 (C.C.P.A. 1964). "There must be no difference between the claimed invention and the reference disclosure..." *Scripps Clinic & Research Foundation v. Genetech Inc.*, 927 F.2d 1565, 18 USPQ 2d 1001, 1010 (Fed Cir. 1991).

Eckart does not explicitly teach that the wire mesh of the panel created by Eckart is more reflective on a first side than on a second side. The Examiner cites *In re Fitzgerald* to propose that Applicants have the burden to show that Eckart does not necessarily inherently do this. The Examiner also cites *In re Best*, 195 USPQ 430, 562 F.2d 1252 for the proposition that desired, predictable, effects are obvious. Applicant has computer searched the *Best* case for these terms, but cannot find them. Applicant respectfully submits that *In re Best* stands for a similar proposition as *In re Fitzgerald:* "the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product."

Clearly, if Eckart makes the mesh symmetrical and/or does not treat one side of it, then the first side will not be more reflective than the opposite side. They will be identical. There is no reason to believe that it ever occurs to Eckart to provide this feature, rather than providing a symmetrical panel. In fact, the only light control proffered by Eckert appears to be in the citation by the Examiner concerning transparency in col. 1, lines 11-22. This citation states that the amount of transparency is controlled using the glass or plastic sheets, not by varying the openings in the weave, as per Applicants' claims. The Eckart reference is really directed much more to possible variations in the glass or plastic sheets, with virtually no information on controlling light using the wire mesh itself. Eckart does not show any apparent concern about the aesthetics of the mesh. Accordingly, Eckart cannot be used in any way as a presumption that the Eckart panel is necessarily more reflective on the first side than on the second side. Thus, inherency is not involved here and the rule of *In re Best* and *In re Fitzgerald* does not apply. This element is not shown.

"Anticipation requires that ... the prior art reference must be enabling, thus placing the alleged disclosed matter in the possession of the public." It is difficult to see how Eckart could possibly satisfy the requirements for anticipation. Accordingly, the rejection is respectfully traversed with respect to claim 5 and claims dependent thereon for this reason alone.

As discussed above, Applicant has also amended claim 5 to comprise "filter material." Eckart does not seem to appreciate any aesthetics associated with any wire mesh, much less wire mesh limited to filter material. There is no reason to believe that Eckart sees any aesthetic value in "filter material."

Regarding claim 9, Eckart does not teach the use of round wires and planar wires in the same weave. This is an unusual weave, not commonly used in the art, and there is no reason to believe that Eckert appreciates the aesthetics of this weave, or is even aware of it. Eckart does not make mention of this. Accordingly, this rejection is traversed based on the limitation of claim 9 by itself, if not in addition to that of claim 5.

Claims 8, 10, 13-20, 23 and 42-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eckart, as applied to claim 5 above.

In order to establish a prima facie case under 35 U.S.C. 103(a) all the claim limitations must be taught or suggested by the prior art. The showing must be clear and particular. See, e.g., *C.R. Bard*, 157 F.3d at 1352, 48 USPQ2s at 1232. See M.P.E.P. 2143.03.

As noted above, Eckart cannot realistically be said to anticipate claim 5, and therefore the rejection to claim 8 is traversed for this reason alone.

Regarding claim 8 and 43, the Examiner states that it would be obvious to one of skill in the art to select a variation to create the intended effect. The Examiner points to the plurality of variables listed by Eckart. However, Eckart does not seem concerned with the "intended effect" of the mesh at all. Eckart admittedly does not show triangular wire. Again, triangular wire is not at all common. There is simply no reason to believe it would be obvious to utilize triangular wire in the first place, and especially because Eckert states no concern about an "intended effect" that would be produced by the mesh itself, rather than by the glass sides, which Eckert does seem to be concerned about.

Regarding claim 42, the limitation is required that at least one set of wires are non-round and are twisted. The Examiner states this would be an obvious variation to create the intended effect. Applicants respectfully submit that so far as is known, this construction of wire mesh has not ever been utilized in the wire cloth industry, or anywhere else. Therefore, there is no reason to believe that it would obvious to combine it with Eckart. If it does exist, then as a practical matter, it would only be found by actually searching for it, and Eckart shows no motivation to do this.

Regarding claim 44 and 45, it is appreciated that using two different types of wires in certain weaves, that the panel can be made non-symmetrical, such as by making one side of the

panel very flat as shown in Fig. 1, especially as a tighter weave than illustrated. This is a very unusual weave when using two different types of wires. Eckart does not remotely suggest this possibility.

Regarding claim 46, a weave with flat knuckles can be used to produce a mirror- like surface, except for the openings which may vary as claimed. Eckart does not remotely suggest anything like this.

Regarding claim 47, both the transparent material and the wire mesh are different on each side. As discussed above, Eckart simply does not teach either of these features, much less both combined together.

Regarding claims 13-16, although Applicants have admitted that these weaves are well known in the art, the aesthetic use of such weaves is not appreciated in the art. Eckart is typical and shows no appreciation of different weaves. Applicants have chosen these particular weaves from among the large number of different types of weaves because Applicants believe they are especially useful in Applicants' design, due to their ability to reduce knuckles (the raised wire intersections) to virtually flat levels, as explained in some detail in the specification. Accordingly, with flat or relatively flat knuckles, these weaves produce special visual effects. In one implementation, a tight weave may even produce something approaching a mirror like effect, if desired. Given that the prior art is devoid of any appreciation of the aesthetic effects of different weaves, regardless of the aesthetic effect, there is no motivation to select the specific and particular weaves claimed by Applicants as showing unusual effects.

Accordingly, the rejections are respectfully traversed based on the comments and amendments to the claims.

Summary

Applicants submit that the amendments and comments provided above now place the application in condition for allowance.

Respectfully submitted,

Kenneth L. Nash
Reg. No. 34,399

Date: 5/23/06

Law Office of Kenneth L. Nash
P.O. Box 680106
Houston, TX 77268-0106
Tel: (281) 583-1024
Fax: (281) 397-6929

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent and Trademark Office, Fax No. 571-273-8300, on the 23rd day of May 2006.

Signature
Printed Name: Mary Shaver

A

HQ 953056

Print

HQ 953056
June 16, 1993
CLA-2; CO:R:C:T 953056 ch
CATEGORY: Classification
TARIFF NO.: 5911.40.0000, 7314.11.9000
District Director U.S. Customs Service 4430 E. Adamo Drive Suite 301 Tampa, Florida 33605
RE: Application for further review of Protest No. 1801-92- 100019 classification of textile filter material and woven wire mesh cloth; straining cloth; oil press; essential character; material lengths; HRL 950284 affirmed; Takashima; Chapter 59, note 7; technical use fabrics, products and articles.
Dear Madam:

The above-referenced protest was forwarded to this office for further review. We have considered the protest and our decision follows.

FACTS:

The subject merchandise are described as filter material and woven wire mesh cloth. The filter material is imported in rolls 200 to 300 feet in length and consists of woven polyester filter belting material which is constructed by weaving monofilament fibers having cross-sectional dimensions of less than 1.0 millimeter into various weave patterns. After importation, the material is cut to length specifications and linking devices are added. The material is then made up into a closed loop. The completed belts are used as filtration media for water treatment and water purification processes.

The woven wire mesh cloth is imported in rolls measuring approximately 100 feet in length and in widths ranging from 24 inches to 60 inches. The importer, GKD-USA, states that 95 percent of the wire mesh will be used for filtration purposes, primarily in liquid-solid filtration processes. The balance of this merchandise will be used for sound suppression in the aerospace industry.

At a meeting held at Customs Headquarters, on March 9, 1993, the importer, GKD-USA, abandoned that part of this protest contesting the classification of the woven wire mesh cloth in subheading 7314.11.90, HTSUSA, which provides for provides for woven cloth of steel wire. Accordingly, the portion of the protest relating to the woven wire mesh cloth shall be denied.

Moreover, in a supplemental submission dated March 18, 1993, GKD acknowledges that the filter material in question is not endless (i.e. made up into a closed loop) or fitted with linking devices. Therefore, it is not classifiable under subheadings 5911.31 or 5911.32, Harmonized Tariff Schedule of the United States Annotated (HTSUSA), which provides for textile fabrics and felts, endless or fitted with linking devices, of a kind used in papermaking or similar machines. Hence, we will not address that part of the protest relating to these provisions.

ISSUE:

Whether the filter material is classified under subheading 5911.40, HTSUSA, which provides for straining cloth of a kind used in oil presses or the like for technical uses; or subheading 5911.90, HTSUSA, which provides for other textile products and articles for technical uses?
LAW AND ANALYSIS:

Classification of goods under the HTSUSA is governed by the General Rules of Interpretation (GRI). GRI 1 provides that classification is determined first in accordance with the terms of the headings of the tariff and any relative section or chapter notes. Where goods cannot be classified on the basis of GRI 1, the remaining GRI will be applied in order.

Heading 5911, HTSUSA, provides for textile products and articles, for technical uses, specified in note 7 to this chapter. This provision did not have a specific counterpart under the Tariff Schedules of the United States (TSUS). Under the TSUS, item 358 provided for belting and belts, for machinery, of textile fibers. However, heading 5911, HTSUSA, also encompasses certain textile fabrics which were formerly classified as woven fabrics pursuant to item 338, TSUS. Under heading 5911, the specified fabrics, products and articles are classified together on the basis that they are "for technical uses."
The phrase "for technical uses" is not defined in the HTSUSA. However, the Explanatory Notes (EN) to the Harmonized Commodity Description and Coding System, which constitute the official interpretation of the nomenclature at the international level, offer some general guidance regarding the meaning of this phrase. The EN to heading 5911 state, in pertinent part, that:

The textile products and articles of this heading present particular characteristics which identify them as being for use in various types of machinery, apparatus, equipment or instruments or as tools or parts of tools.

As described above, the instant filter material will be made up into belts for use as filtration media in machinery and equipment for the dewatering of industrial and municipal waste. Thus, it appears that this merchandise falls generally within the scope of heading 5911.

Section XI, chapter 59, note 7, HTSUSA, specifically describes the goods which are encompassed by heading 5911. This note states that:

Heading 5911 applies to the following goods, which do not fall in any other heading of section XI:

(a) Textile products in the piece, cut to length or simply cut to rectangular (including square) shape (other than those having the character of the products of headings 5908 to 5910), the following only:

(i) Textile fabrics, felt and felt- lined woven fabrics, coated, covered or laminated with rubber, leather or other material, of a kind used for

card clothing, and similar fabrics of a kind used for other technical purposes;
(ii) Bolting cloth;
(iii) Straining cloth of a kind used in oil presses or the like, of textile material or of human hair;
(iv) Flat woven textile fabric with multiple warp or weft, whether or not felted, impregnated or coated, of a kind used in machinery or for other technical purposes;
(v) Textile fabric reinforced with metal, of a kind used for technical purposes;
(vi) Cords, braids and the like, whether or not coated, impregnated or reinforced with metal, of a kind used in industry as packing or lubricating metals;
(b) Textile articles (other than those of headings 5908 to 5910) of a kind used for technical purposes (for example, textile fabrics and felts, endless or fitted with linking devices, of a kind used in papermaking or similar machines (for example, for pulp or asbestos-cement), gaskets, washers, polishing discs and other machinery parts).

Under the terms of chapter 59, note 7(a), only the textile fabrics and products enumerated in 7(a)(i) through 7(a)(vi) fall within the purview of heading 5911. Note 7(b) enlarges the scope of this heading to include textile articles of a kind used for technical purposes.

In Headquarters Ruling Letter (HRL) 950284, dated March 19, 1992, we classified filter material substantially similar to the instant merchandise under subheading 5911.40, which provides for straining cloth of a kind used in oil presses or the like. The EN to heading 5911 describe "straining cloth of a kind used in oil presses or the like" as:

...(e.g. woven filter fabrics and needled filter fabrics), whether or not impregnated, of a kind used in oil presses or for similar filtering purposes (e.g., in sugar refineries or breweries) and for gas cleaning or similar technical applications in industrial dust collecting systems. The heading includes oil filtering cloth, certain thick heavy fabrics of wool or of other animal hair, and certain unbleached fabrics of synthetic fibres (e.g., nylon) thinner than the foregoing but of a close weave and having a characteristic rigidity. It also includes similar straining cloth of human hair. (Emphasis added).

In HRL 950284, we concluded that:

This language indicates that the drafters of the tariff schedule have included in their definition of "straining cloth" a much broader range of articles than those that are merely used in oil presses.
This finding is supported by the text of the EN to heading 5911, which state that the phrase "oil presses or the like" should be interpreted to include filtering fabrics for sugar refineries, breweries, gas cleaning or dust collecting systems.

We went on to state:

We next address whether a "straining cloth" is different than a "filtering" cloth or belt. It is this office's opinion that the terms are synonymous as evidenced by the common usage of the word "strain" and the identical functions of straining cloths and filtering cloths or belts. Webster's New Riverside University Dictionary (Riverside 1984) defines "strain" as "to pass (a substance) through a filtering agent; ... to remove or draw off by filtration." In other words, to strain is to filter and, by analogy, a straining cloth or belt.
On this basis, we concluded that the phrase "straining cloth of a kind used in oil presses or the like" should be construed so as to include all filtering cloths designed to separate solid matter from fluid and which are for technical uses. Therefore, the filter material at issue in HRL 950284 was classified in the subheading for straining cloths, despite the fact that it was not used in oil presses.

In GKD's supplemental submission of March 18, 1993, counsel contends that our construction of the phrase "straining cloth of a kind used in oil presses or the like" is far too liberal. He reasons that "the text of subheading 5911.40 is worded so as to capture more than filter cloths for oil presses, but it is limited to those filter cloths that bear some semblance ("or the like") to the ones used for oil presses." Several arguments, discussed more fully below, are advanced to demonstrate that filter material for water purification purposes bears no resemblance to straining cloths used in oil presses. As a result, counsel concludes that subheading 5911.40 does not describe the instant merchandise, and classification of this material devolves to subheading 5911.90, the basket provision for technical use products or articles not more specifically described under heading 5911.

To support the theory that the HTSUSA places a limit on cloths which are "like" those used in oil presses, counsel makes three relevant observations. First, he directs our attention to subheadings 5911.31, 5911.32 and the subheading EN for subheading 5911.90. Subheadings 5911.31 and 5911.32 provide for textile fabrics, endless or fitted with linking devices, of a kind used in papermaking or similar machines. Although the instant material is not classifiable under these subheadings because it is not endless or fitted with linking devices, counsel deems it significant that the scope of this provision is limited to fabrics of a kind used in papermaking or similar machines. In addition, the EN for subheading 5911 state specifically that articles of a kind used in paper-making or similar machines fall within its ambit.
Second, counsel contends that the physical attributes of the instant filter material is similar to filters used in paper- making machines. Specifically, he points out that the mesh size of the instant filters are on the order of 15 times the size of filters typically utilized in oil presses. He has also submitted supporting documents which tend to support the proposition that the subject merchandise resembles those filters used in paper- making machines.
Finally, counsel cites the trade allocations in the conversion from the TSUS to the HTSUSA, USITC Publication 1400, Annex II. These citations indicate that the International Trade Commission (ITC) allocated item 358.5040, TSUS, the provision for clothing for paper-making, printing, or other machines, in the piece or as units, of man-made fiber textile materials to HTSUSA subheadings 5911.10, 5911.31, 5911.32 and 5911.90, but not to 5911.40, the subheading for straining cloth. On this basis, he argues that the ITC intended for all textile paper-making cloth which are not classifiable under subheadings 5911.10, 5911.31 and 5911.32 to be classified pursuant to subheading 5911.90.

We have contacted the ITC and have been assured that there was no specific intent on their part for all paper-making cloth to be classified under subheading 5911.90. Moreover, drawing such a conclusion from the conversion allocations is unwarranted in this case since, as counsel admits, heading 5911 had no analog under the TSUS. Indeed, the presence of provisions for cloth of paper-making machines within heading 5911, HTSUSA, may merely be the result of language carried over from item 358.5040, TSUS. Hence, we discount entirely the proffered conversion materials.

Furthermore, as noted above, chapter 59, note 7(a), prescribes that textile fabrics are not classifiable under heading 5911 unless they are one of the fabrics or products identified in notes 7(a)(i) through 7(a)(vi). Straining cloth is a technical use fabric pursuant to note 7(a)(iii). However if, as counsel argues, the subject filter material is not classifiable as straining cloth, we have determined that it does not meet the specifications of notes 7(a)(i) through 7(a)(vi). Therefore, the filter material would not be classifiable as a technical use fabric, and would be properly classified under subheading 5407.60.20, which provides for other woven fabrics of synthetic filament yarn. It is interesting to note that this subheading is dutiable at 17 percent, which is the same rate as the straining cloth provision of heading 5911.
Counsel appears to anticipate this result by arguing that the filter material is an "article," despite the fact that it is imported in material lengths. Assuming, for the sake of argument, that this is the case, the material could be classified as a technical use article pursuant to chapter 59, note 7(b). Specifically, the subheading EN to heading 5911 state:

Articles formed of linked monofilament yarn spirals and having similar uses to the textile fabrics and felts of a kind used in paper-making machines fall in this subheading and not in subheading 5911.31 or 5911.32. (Emphasis added).

Thus, the filter material would be classified pursuant to subheading 5911.90 if it is an "article."
In support of this theory, our attention is drawn to Takashima v. United States, CIT Slip Op. 92-216 (1992). In Takashima, the merchandise at issue were two types of laminated polyethylene sheeting which were cut to length and width and came in various sizes and colors. The Court of International Trade found that under the TSUS the term "articles" includes both "intermediate and finished products." As the polyethylene sheeting had been cut to specific sizes and widths, they were "intermediate articles" which were classifiable as completed articles under the TSUS.
However, Takashima was decided under the TSUS and has no application under the HTSUSA. The merchandise at issue in that case would now be classifiable pursuant to Chapter 39, HTSUSA, which provides for plastics and articles thereof. Chapter 39, note 10, states:

In headings 3920 and 3921, the expression "plates, sheets, film, foil and strip" applies only to plates, sheets, film, foil and strip (other than those of chapter 54) and to blocks of regular geometric shape, whether or not printed or otherwise surface-worked, uncut or cut into rectangles (including squares) but not further worked (even if when so cut they become articles ready for use).

As this language makes clear, the polyethylene sheeting at issue in Takashima would not be classified as an article under the HTSUSA. Therefore, we are not bound to classify the instant material imported in material lengths as an article.
Ultimately, the subject merchandise is classifiable as either a technical use fabric of heading 5911; or as a woven textile fabric of heading 5407. As the EN to heading 5911 evidence an intent to encompass products used in machinery, we conclude that heading 5911 is the appropriate classification for this type of merchandise. Therefore, we affirm HRL 950284, which held that the term "straining cloth of a kind used in oil presses or the like" refers to all filter cloth which separate solids from liquids and which are for technical purposes. Hence, the instant filter material is also classifiable under subheading 5911.40.

HOLDING:

Therefore, based on the foregoing discussion, this protest should be denied in full.
The woven wire mesh cloth is classifiable under subheading 7314.11.9000, HTSUSA, which provides for cloth (including endless bands), grill, netting and fencing, of iron or steel wire; expanded metal of iron or steel: woven products: of stainless steel: with meshes finer than 36 wires to the lineal centimeter in warp or filling: other. The applicable rate of duty is 7.2 percent ad valorem.

The polyester filter material is classifiable under subheading 5911.40.0000, HTSUSA, which provides for textile products and articles, for technical uses, specified in note 7 to this chapter: straining cloth of a kind used in oil presses or the like, including that of human hair. The applicable rate of duty is 17 percent ad valorem.

A copy of this decision should be attached to the CF 19 Notice of Action to satisfy the notice requirement of section 174.30(a), Customs Regulations.

Sincerely,

John Durant, Director

B

Wire Cloth and Wire Mesh Applications

Woven wire cloth (also referred to as woven wire mesh) is utilized in so many different applications that it is difficult to identify a natural or man made product that is not associated in some way to wire cloth.

Typically, most wire cloth applications may be separated into one of two distinct groups of usage, inclusion or exclusion. In applications where "inclusion" is the objective, the opening between wires plays the primary role. In applications where "exclusion" is the objective, the wire is the key factor.

When the wire is of primary importance, the following factors are usually considered:

- Abrasion Resistance
- Corrosion Resistance
- Electrical Conductivity
- Heat Conductivity
- Strength
- Chemical Resistance
- Ductility
- Flexibility or Rigidity
- Impact Resistance
- Temperature Extremes

When the opening between the wires is of primary importance, the applications usually involve:

- clarification
- cleaning
- containment
- declumping
- dewatering
- classification
- conditioning
- conveying
- demisting
- extraction

- filtering
- purification
- safety
- separating
- sieving
- sizing
- particle retention
- screening
- security
- shielding
- sifting
- sorting

Typical applications for woven wire cloth and woven wire mesh:

Abrasives	Architecture	Detergent	Gasket	Plastics
Acoustics	Automotive	Distilleries	Guarding	Rubber
Aerospace	Bottling	Electronics	Iron & Steel	Salt
Adhesives	Brewing	Fertilizers	Medical	Sand & Gravel
Aggregate	Cement	Filtration	Mining	Security
Agriculture	Ceramic	Fisheries	Paper	Seed - Grain
Aluminum	Chemical	Flour Milling	Paint	Sugar
Animal Feed	Coal-Coke	Food	Petroleum	Waste
Appliance	Computer	Foundries	Pharmaceutical	Water

Aggregate, Sand & Gravel

Woven wire mesh and space screens are used in washing, sizing and classification of aggregates, sand and gravel.

- Vibrating screen decks
- Grinding control of crusher feed
- Scalping of material

Back to Top

Chemical Processing

Wire cloth and wire mesh is used in the processing of liquids and powders, including solvents and pharmaceuticals.

- Pressure and vacuum filters
- Fluid bed dryers
- Centrifuges

Back to Top

Food Processing

Wire cloth, wire mesh and space cloth are used in the processing of cucumbers, corn, nuts, onions, pasta, potatoes, spices and many other food products.

- Screening and sieving
- Dust extraction
- Vacuum, pressure and belt press filters
- Centrifugal, gyratory and vibratory sifters
- Drying chambers and drying belts

Back to Top

Water and Waste Treatment

Wire cloth and wire mesh are used in the treatment of municipal and industrial sludge and in water filtration.

- **Belt press and cartridge filters**
- **Gravity separators**
- **Vacuum and pressure filters**

Back to Top

Main-Index | Product Index | Reference | Send Mail

[Woven Wire Cloth] [Wirecloth Products] [Wire Mesh Reference]

Send mail to : service@screentg.com with questions about woven wirecloth.

Last modified: June 29, 2002

C

About Wire Cloth

Wire Cloth - Companies

See all Companies for Wire Cloth >>

Hillside Wire Cloth Co. View all 30 Products for Wire Cloth

Langley Wire Cloth Products View all 30 Products for Wire Cloth

TWP Inc. View all 30 Products for Wire Cloth

View more Wire Cloth Companies >>

Wire Cloth - Products

See all Products for Wire Cloth >>

Hillside Wire Cloth Co. - **Wire Cloth - WC -- WCT:Market grade MPI:10**

Langley Wire Cloth Products - **Wire Cloth - WC -- MPI:10 DOW:0.023**

TWP Inc. - **Wire Cloth - 008X008S0280W36T**

View more Products for Wire Cloth >>

Wire Cloth - Articles

See all articles for Wire Cloth>>

Wire Cloth

Company offers a line of precision woven wire mesh and fabricated components specifically...

Screening Equipment

Company's line of products is ideal for precise screening and separating procedures used in...

Screen Replacements

Company offers a variety of replacement screens to fit any vibratory or gyratory screener...

Waterproof Matte Gaffers Tape

Scapa 3130 is a waterproof, matte-finish cloth gaffers tape that is well suited for a wide range...

Infrared Chamber Heater

ChamberIR Model E4 infrared heater focuses high-density infrared energy generated by T3-style,...

Side-Loaded Filter/Bin Vent

SideWinder™ side-loaded filter/bin vent delivers top-loading media benefits while reducing...

View more articles for Wire Cloth >>

Wire Cloth is a metal wire that is welded or woven to form a cloth like material. Wire cloth is also referred to as wire mesh. They are used in a wide variety of applications. Wire cloth is available in various materials including stainless steel, titanium, aluminum, brass, nickel alloy, bronze, copper and carbon steel. Wire cloth is available in different opening sizes and wire diameters. Wire cloth is commonly used as filtration media and does not create any pollution. Wire cloth is ideal for strainers. Wire cloth made of stainless steel offers high resistance and strength.

Wire Cloth is available in different weaves. They are plain weave, dutch weave, twilled weave and twilled dutch weave. Plain weave is the most common type of wire cloth

weave. They are used in a wide variety of applications. Dutch weave type wire cloths have greater strength and fine openings. They are used as filter cloth. The twilled weave type wire clothes are widely used for filtration applications and greater loads. The twilled dutch weave type wire cloth combines the features of both dutch and twilled weave type wire cloth. It has a fine mesh on one side and coarse mesh on the other side. They support greater loads than the dutch weave type wire cloth and have finer openings. This type of wire cloth is used in applications where heavy materials need to be filtered.

Backing cloth, cloth baskets, test sieves, filter cloth, copper screens, square mesh and bolting cloth are the common types of wire cloth. The mesh count and diameter of the wire is uniform in either direction in a square mess cloth. Copper screens are used for Faraday cages, insect screens and electromagnetic shielding. Filter cloth is specially designed for filtering or straining applications. Test sieves are available in various styles. They are totally sealed and evenly tensioned mesh. Bolting cloth is made of stainless steel and have small wire diameter. This small wire diameter results in a large open area. Cloth baskets have a round or rectangular frame.

Types of Wire Cloths

- Woven wire cloth
- Welded wire cloth

Both the above wire cloths can be fabricated into different shapes based on the requirements.

Woven wire cloth

Woven wire cloth is the most common type of wire cloth. They are used in screening, general sorting and filtering applications. The woven wire cloth can be used as a filter media. Woven wire cloth is available in steel, nickel, aluminum, brass, nickel alloy and copper alloy. They are less expensive when compared to a sintered metal fiber mat.

Welded wire cloth

This type of wire cloth is smoother and has larger wire diameter. The wire is welded at each intersection. Welded wire clothes provide more rigidity and strength.

Measuring Wire cloth

Space cloth

Space cloth is identified as the measurement of open space between the parallel wires. The open space is also referred to as space size or open area or clear opening.

Mesh count

Mesh count or mesh per inch is the critical attribute of a wire cloth. Mesh count is the

distance between the centers of parallel wire. The mesh count is represented either as a fraction or whole number or two numbers.

Specifications of Wire Cloths

Material

It refers to the materialused to makethe wire cloth..

Mesh per inch

It refers to the total number of openingsof a wire cloth per inch.

Advantages of Wire Cloths

- Wire cloths can be easily shaped according to the requirement.
- Wire cloths have high temperature resistance and provide extended service.
- Economical and easy handling.
- Available in a wide variety of materials.
- Easy to clean and maintain.

Applications of Wire Cloths

- Wire cloth is used in water and waste treatment for filtration of water and industrial sludge.
- Wire cloth is used in the food processing industry for processing of various food products including potatoes, cucumbers, pasta, corn, spices and nuts.
- Used in grilles, containers, filters, grain wagon guards, stairway guards and machine guards.
- Used in lockers, bins, fan guards, room dividers, insulation retention, speaker covers, safety barriers and shelving.
- Used as safety guards, fencing, litter bins, automotive grills, window guards, baskets, catwalk guards, pallets and cages.
- Used in dryer trays, gates, displays and vent covers.
- The stainless steel wire cloth is used in the chemical processing industry to process liquids and powders.
- Used in washing of aggregates and gravel.

- Used in spark and flame arrestors.
- Used as protection for filter media.

Diagram Link of Wire Cloths

http://www.sefar.com/cms/medien.nsf/img/D4F4B81CD071A56AC1256E4D00757795/$FILE/fd_fm_wcroilgood01_wts_265x175.jpg

Back to top

Product Sitemap: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z NUMERIC
Company Sitemap: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z NUMERIC
Product Info Sitemap: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z NUMERIC

About ReedLink | Partner Links | Advertiser Center | User Center | Press Room | Contact Us

D

ARGUS STEEL PRODUCTS Wire Cloth

Your one source for fast shipment on Wire Cloth, Perforated Metal, Expanded Metal and Grating

Wire Mesh & Wire Cloth
Perforated Metals
Expanded Metals
Industrial Grating
Woven Wire
Contact
Site Map
Home

Wire Mesh & Wire Cloth

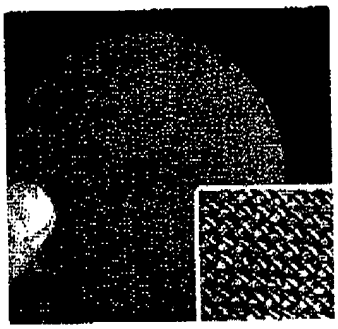
Special!
Overstocked on 48" Galvanized Wire Cloth Rolls.
Absolute Lowest Price!
Ships Today
Call or e-mail for more information

QUICK DELIVERY! • COMPETITIVE PRICES

AGGREGATE AND VIBRATING SCREENS • SECURITY SCREENS

HOT DIPPED GALVANIZED • WOVEN & WELDED WIRE CLOTH • STAINLESS SPACE CLOTH

Stocking stainless woven mesh to 200 mesh. Galvanized and stainless welded hardware cloth. Roll stock cut to size. Will custom weave any alloy or any mesh.



Argus Steel is a full service supplier of Wire Fabric and Wire Cloth. Also known as woven wire, woven wire mesh, wire mesh, welded wire mesh, wire mesh screens or filter cloth. The standard grades of woven wire fabric are market grade, mill grade and tensile bolting cloth. These products are designated by mesh count/inch, wire diameter and metal. Market grades are the most common specifications, mill grades feature lighter diameter wires and larger % of open areas and tensile bolting cloths the lightest wires and the largest % of open areas. These products are generally used for industrial filtering, straining and sizing although woven wire has many other uses such as woven wire grill mesh and fire screen mesh. While the majority of inventory is T304 and T316 stainless steel wire mesh, we also stock other metals including aluminum wire mesh cloth, brass, & bronze wire mesh and copper wire mesh Exotic metals such as titanium wire mesh and high temperature alloys such as Inconel and Nichrome are also available. Space cloth is another grade of woven wire, designated by opening and wire diameter. This product is available in different types of weaves including lock crimp and intermediate crimp as well as most metals.

Custom fabrication of square and diamond meshes for wire mesh partitions, fill panels, wire mesh railings, window guards and other architectural woven wire products are also in our product line.

Click here to see the wire cloth stock list more information

Hardware cloth is another very popular item. We stock a full line of galvanized hardware cloth in addition to stainless steel. Vinyl coated hardware cloth, woven wire fencing and chicken wire mesh or hex netting, rat wire,

How to specify when ordering woven wire mesh

bird screen and crab pot wire are also available.

commonly stocked by Argus Steel more information

If an item is not available from our stock, please contact us for custom made woven welded wire cloth.

From the finest mesh to the heaviest woven product, we are proud of having one of the largest inventories in the southeast. We offer same day service on these items. In addition to our standard square mesh, we carry space cloth, useful when you have a requirement for a screen with a precise opening. We also offer finished screens in stainless, galvanized, high carbon and oil tempered wire, with any style hook strips.

Why go to the O.E.M. and pay more for your screens? We offer cut-to-size, high tensile stainless for institutional detention; woven diamond or square mesh security screens clinched into channel frames, custom made for your industrial or commercial applications. Both light duty hardware cloth, galvanized after welding, for agricultural uses and heavy duty galvanized for military and industrial uses.

In stainless or carbon steel - custom welded to your requirements, when a woven product will not suffice. Great prices on quality materials - you benefit from our volume buying power.

ARGUS STEEL PRODUCTS
ARGUS STEEL PRODUCTS
P.O. Box 25133, Richmond, Virginia 23260
Toll Free: 1.877.333.5300 · Fax: 804.358.3415
E-mail: info@argussteel.com

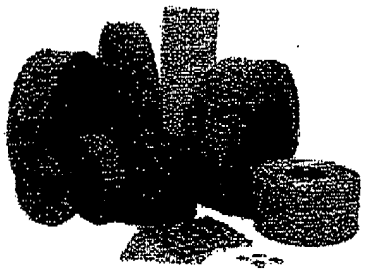
E

DORSTENER WIRE TECH

Your Source for Wire Cloth, Welded Wire Mesh And Stitching & Stapling Wire

Home | Contact Us | Request a Quote | Quality Systems & Services | Tool Boxes & Terms | News & Events | About Us

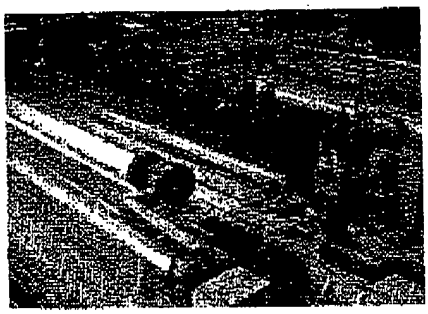
Stainless Steel Woven Wire Cloth Conversion Services @ Dorstener Wire Tech

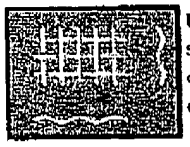


What Is Wire Cloth? This is a general term for a woven material made from a metallic wire. Traditional wire cloth (Wire Mesh, Wire Screen, Woven Mesh) is made in rolls on a loom. It consists of a warp and shute wire and the openings can be made in many geometric shapes and sizes. The wire is generally crimped during the weaving process and the openings are controlled during the weaving process.

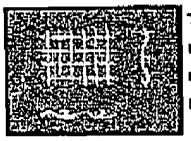
Custom Woven Cloth: DWT can provide custom wire cloth products to enhance your final product or help reduce your fabrication cost.

- Extra Long Rolls or Coils: Up to 800' with No Seams on selected items
- Extra Wide Widths: Up to 240" Wide is available on select items
- Selvage / Woven Edges
- Prototype Design Services available
- Special Wire Selection: (Cable Mesh, Plastic Coated Wires, and More)

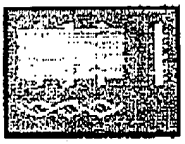




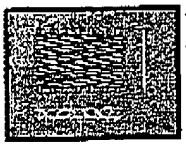
Plain Weave is the most commonly used and simplest wire cloth weave. Each shute wire is woven alternately over and under the warp wires through the cloth at 90 degree angles. This is a very common weave that can be produced quickly and economically. It has a wide range of applications.



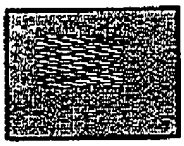
Twilled Weave is woven by passing each shute wire alternately over and under two warp wires. This type of weave is commercially woven in items ranging from 150-635 mesh however it is also available in course and mid range mesh combinations.



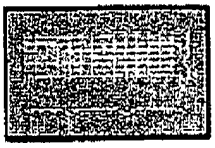
Dutch Weave is woven with a larger wire diameter in the warp direction and a relatively smaller wire in the shute direction. This weave has great strength and is available in wide range of micron ranges. It is primarily used to filter a wide range of liquid and slurry products.



Twilled Dutch Weave is a woven product that is capable of very fine filtration. Shute wires are passed alternately over and under two warp wires forming a fine mesh. It has a wide range of filtration applications for gas and liquid applications.



Reverse Dutch Weave is a very strong woven product. This mesh is ideal for making filter belts, and applications where fine filtration and great strength are required. This mesh is also made in reverse twill dutch and sometimes referred to as PZ and KPZ Mesh.



Five Heddle Weave cloth provides a rectangular opening. The unique design of this mesh can assist increased drainage and flow properties. This mesh also has a smooth surface on one side.

Traditional Woven Wire Cloth has several categories to help classify the mesh into groups. In addition to these groups there are countless combinations that can be supplied. (Click our Product Finder for more Details)

MARKET GRADE Most common specifications of industrial wire cloth. Used in a wide variety of applications. Usually woven in a square weave or twill weave.

MILL GRADE Used mostly in sifting and sizing applications. Higher percent of open area compared to market grade. Usually woven in a square weave.

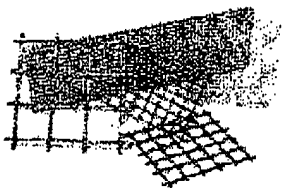
BOLTING GRADE Used in sifting and sizing applications and general filtration applications. Higher percent of open area compared to market and mill grade. Usually woven in a square weave. Sometimes referred to as TBC or Tensile bolting cloth.

STRAINER GRADE Wire cloth with a rectangular opening. Also referred to as oblong mesh and off count mesh. Used in filtration and straining applications.

MICRONIC FILTER CLOTH Very durable and strong cloth. Also referred to as "Dutch Weave". Usually supplied in a twilled Dutch or plain Dutch weave depending on the mesh count. Normally used in filtration applications such as pressure filters, fuel filters, and many more.

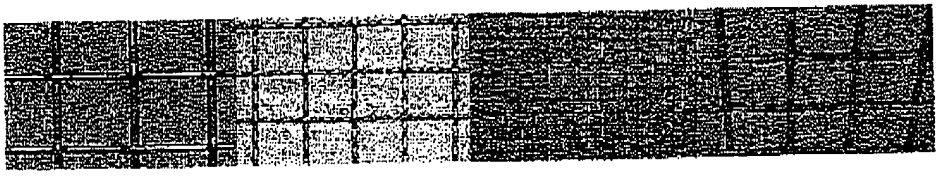
CUSTOM WOVEN WIRE CLOTH: Dorstener manufactures a wide range of custom wire cloth products. Specialty Weaves - Specialty Widths - Special Opening Sizes and Wire Diameters - Special Alloys - Precision Mesh

What is Pre-Crimp Mesh?



This woven mesh uses wire that is crimped prior to weaving. The opening is normally determined by the size and style of the crimp. Our Pre-Crimp mesh in normally woven with wire diameters ranging from .035" - .375" and openings ranging from less than .250" - 6".

We can supply in cut panels & rolls up to 120" wide.



Lock Crimp Intermediate Crimp Plain Weave Flat Top Weave

19994 Hickory Twig Way
Spring, Texas 77388
Toll Free: 1-888-931-9473 Tel: 281-651-6226 Fax: 281-651-6228 | Sitemap

Site Credits: Ecreativeworks

DORSTENER WIRE TECH

Your Source for Wire Cloth, Welded Wire Mesh And Stitching & Stapling Wire

Tool Box & Terms

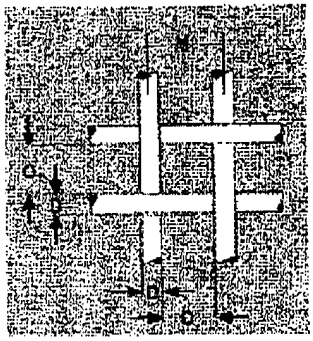
The following tools and formulas can help determine the proper product for your application.

Product Terminology

FORMULAS

Key:
M = Mesh count
D = Wire Diameter
O = Opening Size
POA = Percent of Open Area

To Calculate Opening:	
O =	1 - DM ------- M



To Calculate Mesh Count:	
M =	1 ------- O + D

To Calculate Wire Diameter:	
D =	1 - MO ------- M

To Calculate Percent of Open Area: POA = (OM)2 * 100

To Calculate Percent of Open Area: POA = (O/O+D)2 * 100

To Calculate Percent of Open Area: POA = (1-MD)2 * 100

Micron / Inch Conversion

To Multiply by To

Convert		Determine
Inches	25445	Microns
Micron	0.00003937	Inches

19994 Hickory Twig Way
Spring, Texas 77388
Toll Free: 1-888-931-9473 Tel: 281-651-6226 Fax: 281-651-6228 | Sitemap

Site Credits: Ecreativeworks

Product Terminology

A-B, C-D, E-F, G-H, I-J, K-L, M-N, O-P, Q-R, S-T, U-V, W-Z

Absolute filtration rating	The diameter of the largest hard spherical particle that will pass through a filter under specified test conditions. This is an indication of the largest opening in the filter cloth.
Air flow/air permeability	Measure of the amount of air that flows through a filter–a variable of the degree of contamination, differential pressure, total porosity, and filter area. Expressed in either cubic feet/minute/square foot or liters/minute/square centimeter at a given pressure.
Aperture	See Mesh Opening.
Betamesh®	A type of Dutch weave wire cloth.
Binding (plugged)	A filter element that has collected a sufficient quantity of insoluble contaminants such that it can no longer pass rated flow without excessive differential pressure.
Bolting Grade	Used in sifting and sizing applications and general filtration applications. Higher percent of open area compared to market and mill grade. Usually woven in a square weave.
Bubble point test	A test to determine the maximum pore size opening of a filter.
Calendering	A process by which fabric or wire is passed through a pair of heavy rollers to reduce thickness, to flatten the intersections of the threads/wires and to control air permeability. Rollers are heated when calendering synthetic materials.
Clear Openings:	Space between adjacent parallel wires. (also Space)
Crimp:	Corrugations in wire to permit locking them in place when perpendicular to each other.
Differential pressure	The difference in pressure between two points of a system, such as between two sides of an orifice
Downstream	The side of a product stream that has already passed through a given filter system; portion located after the filtration unit.
Dutch Weave	Warp and weft wire diameters are different in size and the weft wires are closer together to provide excellent strength and high density.
Effective area	The total area of the porous medium exposed to flow in a filter element.
Efficiency	The ability, expressed as a percent, of a filter to remove specified

	artificial contaminant at a given contaminant concentration under specified test conditions.
Filter life	Measure of the duration of a filter's useful service. This is based on the amount of standard contaminant required to cause differential pressure to increase to an unacceptable level-typically 2-4 times the initial differential pressure, a 50-80% drop in initial flow, or an unacceptable downstream measure of particulate.
Filter media	A porous material for separating suspended particulate matter from fluid.
Filtration	A process of separating particulate matter from a fluid by passing it through a permeable material.
Flow rate	Measure of the amount of fluid passing through the filter. This is always a variable of filter area, porosity, contamination and differential pressure.
Market Grade:	Most commonly used sizes of industrial wire cloth specifications selected for general purpose work.
Micronic Filter Cloth:	Very durable and strong cloth. Also referred to as "Dutch Weave". Usually supplied in a twilled Dutch or plain Dutch weave depending on the mesh count. Normally used in filtration applications such as pressure filters, fuel filters, and many more.
Mill Grade:	Used mostly in sifting and sizing applications. Higher percent of open area compared to market grade. Usually woven in a square weave.
Mean filtration rating	Derived from Bubble Point test method. Data should be used as a guide only to compare overall retention capabilities between fabrics and should not be considered a guarantee of the particle size that the fabric will retain.
Mesh:	Number of openings in a linear inch measured from the center of one wire to a point 1" distant.
Mesh count	The number of threads in a linear centimeter or inch of fabric/wire cloth.
Mesh opening	Mesh opening is the difference between wires measured in the warp and weft direction in the projected plane of the wire mesh.
Open area	The proportion of total screen area that is open space. Expressed as a percentage.
Pore size	Filters are rated according to the size of particles they can remove. Particles which are bigger than indicated pore size, are removed. Smaller particles pass through the fabric The size of particles is measured in micro-meters or "microns" one micron being equal to one-millionth of a meter or one-thousandth of a millimeter, the size of coal dust or baking flour. The smallest bacteria are about ½.
Pre-crimp Mesh	The wire is crimped prior to weaving. Mostly limited to coarse mesh with larger wire diameters.
Selvage Edges	A loom finished edge that prevents cloth unraveling.
Separation	This process divides or separates a mixture of particles or liquids into separate components.
Square weave	See Plain Weave.

Space Cloth:	This mesh has a clear opening size. 1" X 1" Space Cloth has a 1" clear opening. 1 X 1 mesh has lass than a 1" opening.
Strainer Grade:	Wire cloth with a rectangular opening. Also referred to as an oblong mesh and off-count mesh. Used in filtration and straining applications.
Twill weave	Formed by passing the warp or weft fiber over two or more fibers in the opposite direction.
Warp Wires	Wire running the length of the cloth as woven.
Weft or Shute Wires	Fibers or wires running across the width of the cloth as woven.
Wire diameter	See Thread diameter.

19994 Hickory Twig Way
Spring, Texas 77388
Toll Free: 1-888-931-9473 Tel: 281-651-6226 Fax: 281-651-6228 | Sitemap

Site Credits: Ecreativeworks

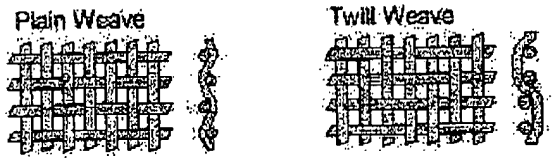
woven wire

F

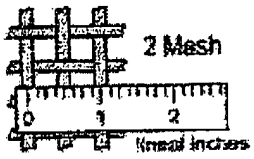
Menu ▸ LENNTECH Woven Wire Search : Go! Contact us

Woven wire cloth is widely used for filtration and is available in a wide range of materials and mesh sizes. It can be woven from any material which is ductile enough to be drawn into a wire form. Preferred materials are phosphor bronze, stainless steel and monel (nickel alloy). Other materials widely used include aluminium alloys, copper plain mild steel or coated mild steel.

The minimum particle size of wire which can be used depends on the alloy, strength required, temperature and corrosion.
Mesh is described by form of weave and mesh count. A square mesh is the usual form in a plain or twilled weave.



For figuring out mesh sizes you have to count the number of openings from the center of any one wire to the center of a parallel wire one inch away. The number of openings is the mesh size. So a 2 mesh screen means there are two little squares across one linear inch of screen. A 100 mesh screen has 100 openings, and so on. Note, therefore that as the number describing the mesh size increases, the size of the particles decreases. Screens can be made with different thicknesses of wire. The thicker the wires, the smaller is the particle passing through that screen, and vice versa.



This formula can be used to calculate the space between the wires:

$$\text{space between the wires} = \frac{1 \text{ inch}}{\text{mesh number}} - \text{thickness of wire} \quad \text{(in inch)}$$

$$\text{space between the wires} = \frac{25.4 \text{ mm}}{\text{mesh number}} - \text{thickness of wire} \quad \text{(in mm)}$$

When working with these formulas you should be careful with the inch units. There is a difference between the English inch of 25.4 millimetres and the metric inch of 27.07 mm, whereby the latter is used very seldom.

Mesh is described more generally by aperture opening (space between the wires), eg

Coarse – aperture opening 1 to 12 mm
Medium – aperture opening 0.18 to 0.95 mm (180 to 950 mm)
Fine – aperture opening 0.020 to 0.160 mm (20 to 160 mm)

The best way to prevent misunderstandings is the description of the screen through the following characteristics:

- the metal sort or the alloy
- the space between the wires
- the thickness of wire

For example:

- A stainless steel gauze number 4 with a thickness of wire of 1.2 mm can be better characterised as

  stainless steel gauze;
  space between the wires 5.15 mm
  thickness of wire (diameter) 1.2 mm

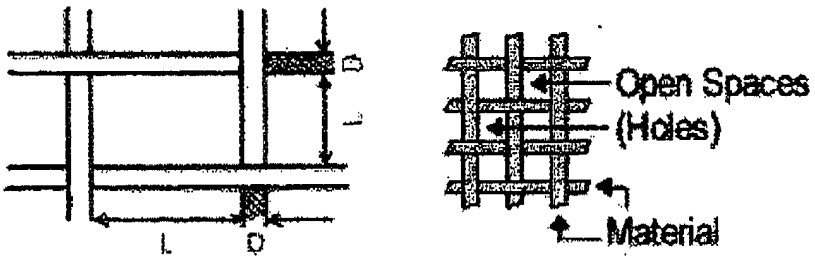
- A monel gauze number 50 with a thickness of wire of 0.20 mm (200 micron) can be better characterised as

  monel gauze
  space between the wires 308 micron
  thickness of wire (diameter) 0.20 mm (200 micron)

A micron is another measurement we use for measuring mesh size. A micron is one-millionth of a meter or one twenty-five thousandth of an inch.

Aperture opening, open area

The aperture opening expresses the open area of the cloth. Wire Mesh contains open spaces (holes) and material. Open area is the total area of the holes divided by the total area of the cloth and is expressed as a percent. In other words, open area describes how much of the wire mesh is open space. This parameter can be calculated by means of the mesh number and the thickness of wire (D). With these two information is it possible to obtain the space between the wires and the open area for every existing mesh number.



$$\text{space between wires } (L) = \frac{1 \text{ inch}}{\text{mesh number}} - D \quad \text{(in inch)}$$

$$\text{space between wires } (L) = \frac{25.4 \text{ mm}}{\text{mesh number}} - D \quad \text{(in mm)}$$

$$\text{open area} = 100 \times \frac{L^2}{(L + D)^2} \quad \text{(in \%)}$$

For an easier handling it is possible to use the following table, which provides the aperture opening and also

woven wire

the relation between space between wires and thickness of wire for every mesh number.

Example:

Mesh number	4	60	100
Thickness of wire	1.2 mm	0.16 mm	0.11 mm
Product number x thickness of wire	4.8	9.6	11.-
Apenture opening	66 %	39 %	32 %

Apenture opening in %	Produkt Meshnumber x Thickness of wire in mm	Relation space between wire and thickness of wire
	1.30	1000:54
90	1.44	1000:60
89	1.57	1000:66
88	1.71	1000:72
87	1.84	1000:78
86	1.98	1000:85
85	2.12	1000:91
84	2.26	1000:98
83	2.40	1000:104
82	2.54	1000:111
81	2.68	1000:118
80	2.82	1000:125
79	2.97	1000:132
78	3.11	1000:140
77	3.26	1000:147
76	3.40	1000:155
75	3.55	1000:163
74	3.70	1000:170
73	3.85	1000:179
72	4.00	1000:187
71	4.15	1000:195
70	4.30	1000:204
69	4.46	1000:213
68	4.61	1000:222
67	4.77	1000:231
66	4.92	1000:240
65	5.08	1000:250
64	5.24	1000:260
63	5.40	1000:270
62	5.56	1000:280
61	5.73	1000:291
60	5.89	1000:302
59	6.06	1000:313
58	6.22	1000:325
57	6.39	1000:336
56	6.56	1000:348
55	6.74	1000:361
54	6.91	1000:374
53	7.08	1000:387
52	7.26	1000:400
51	7.44	1000:414
50		

49	7.62	1000:429
48	7.80	1000:443
47	7.99	1000:459
46	8.17	1000:475
45	8.36	1000:491
44	8.55	1000:508
43	8.74	1000:525
42	8.94	1000:543
41	9.14	1000:562
40	9.33	1000:581
39	9.54	1000:600
38	9.74	1000:622
37	9.95	1000:644
36	10.16	1000:667
35	10.37	1000:690
34	10.59	1000:715
33	10.81	1000:741
32	11.03	1000:768
31	11.26	1000:796
30	11.49	1000:826
29	11.72	1000:857
28	11.96	1000:890
27	12.20	1000:925
26	12.45	1000:961
25	12.70	1000:1000
24	12.96	1000:1041
23	13.22	1000:1085
22	13.49	1000:1132
21	13.76	1000:1182
20	14.04	1000:1236
19	14.33	1000:1294
18	14.62	1000:1357
17	14.93	1000:1425
16	15.24	1000:1500
15	15.56	1000:1582

I.S.W.G.

In England the thickness of wire is not expressed through the wire diameter. Instead of that a number from the special I.S.W.G.-code is used. Other synonyms for this code are S.W.G. or B.W.G.
The table below gives an overview over all I.S.W.G. numbers including the thickness in inch and in millimetres.

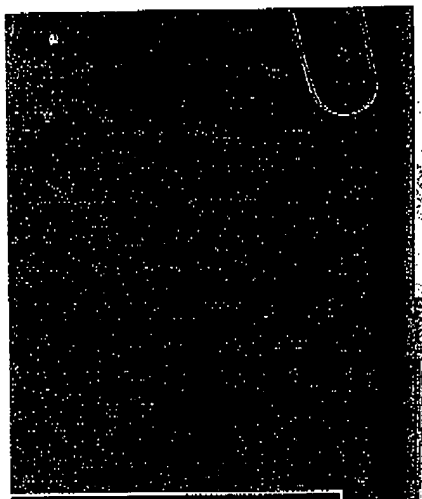
I.S.W.G	Size in inches	Size in mm	Thickness of wire, diameter in mm
0000000	.500	12.70	13
000000	.464	11.78	12
00000	.432	10.97	11
0000	.400	10.16	10
000	.372	9.45	9.5
00	.348	8.84	9.-
0	.324	8.23	8.5
1	.300	7.62	8.-
2	.276	7.01	7.-
3	.252	6.40	6.5
4	.232	5.89	6.-
5	.212	5.38	5.5
6	.192	4.88	5.-
7	.176	4.47	4.5

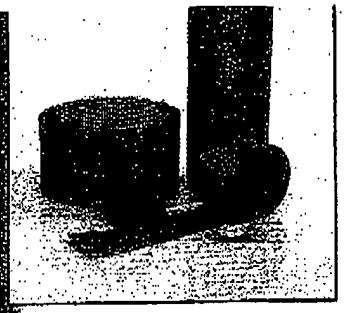
8	.160	4.06	4.-
9	.144	3.66	3.8
10	.128	3.25	3.4
11	.116	2.95	3.-
12	.104	2.64	2.6
13	.092	2.34	2.4
14	.080	2.03	2.-
15	.072	1.83	1.8
16	.064	1.63	1.6
17	.056	1.42	1.4
18	.048	1.22	1.2
19	.040	1.02	1.-
20	.036	0.914	0.9
21	.032	0.813	0.8
22	.028	0.711	0.7
23	.024	0.609	0.6
24	.022	0.558	0.55
25	.020	0.508	0.50
26	.018	0.457	0.45
27	.0164	0.416	0.40
28	.0148	0.376	0.37
29	.0136	0.345	0.34
30	.0124	0.315	0.31
31	.0116	0.295	0.30
32	.0108	0.274	0.28
33	.0100	0.254	0.26
34	.0092	0.234	0.24
35	.0084	0.213	0.22
36	.0076	0.193	0.20
37	.0068	0.173	0.18
38	.0060	0.152	0.16
39	.0052	0.132	0.14
40	.0048	0.122	0.12'
41	.0044	0.112	0.11
42	.0040	0.102	0.10
43	.0036	0.0914	0.090
44	.0032	0.0813	0.080
45	.0028	0.0711	0.070
46	.0024	0.0610	0.060
47	.0020	0.0508	0.050
48	.0016	0.0406	0.040
49	.0012	0.0005	0.030
50	.0010	0.0254	0.025

Please also check our alternative filtration possibilities

woven wire

tel: (+31)(0)15 26.10.900
fax: (+31)(0)15 26.16.289
e-mail: info@lenntech.com





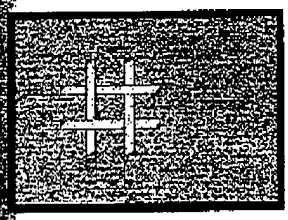
patterns, and mesh counts. Our product: are used in thousands of applications in all industries.

G.

Quality Control

DIN EN ISO 9002

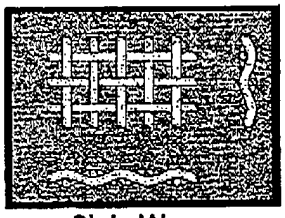
DNV



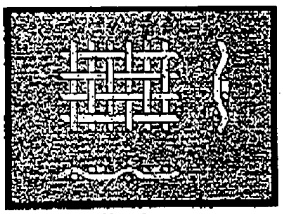
When choosing a woven mesh for an application it is important to review the following:

- Required Aperture
- Percent of Open Area Required
- Mechanical Properties of the Mesh
- Wire Diameter
- Alloy Requireme
- Roll of Sheet Siz

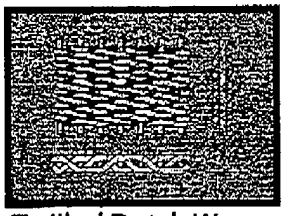
Plain Dutch Weave



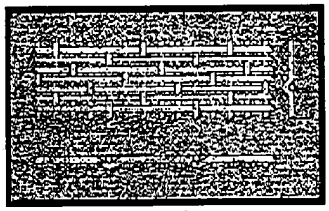
Plain Weave



Twilled Weave



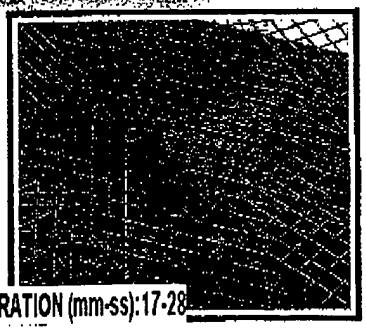
Twilled Dutch Weave



Five-Heddle Weave

Welded Wire Mesh

Dorstener Wire Tech provides welded wire mesh for a variety of applications. Stainless steel and carbon steel are our specialties. We supply welded



MICRONIC FILTER CLOTH

DWT DORSTENER WIRE TECH

Mesh Count	Wire Dia. In Inches	Nominal Micron Rating
12x64	.024x.0165	200
14x88	.020x.013	150
24x110	.014x.010	80
30x150	.009x.007	65
30x250	.010x.008	70
40x200	.007x.0055	55
50x250	.0055x.0045	40
80x400	.005x.003	35
80x700	.004x.003	25
200x600	.0024x.0018	20
120x400	.0040x.0025	40
165x800	.0028x.0020	15
165x1400	.0028x.0016	10
200x1400	.0028x.0016	5
325x2300	.0015x.0010	2
375x2300	.0014x.0009	1

Can't see thru

It not even Dyed

DWT: CORPORATE
19994 Hickory Twig Way
Spring, TX 77388
281.651.6226 Phone
281.651.6228 Fax

DWT: MIDWEST
936 Prospect Ave.
Elmhurst, IL 60126
630.359.3240 Phone
630.359.3302 Fax

NATIONAL CUSTOMER SERVICE
888.931.9473
sales@dwt-inc.com
www.dwt-inc.com

DWT: WEST
12020 Woodruff Ave, Unit C
Downey, CA 90241
562.803.4005 Phone
562.803.4411 Fax

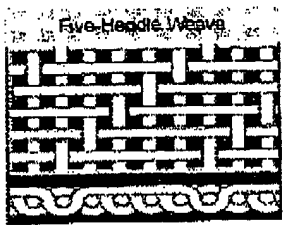
DWT: EAST
1375 Briargate Dr.
York, PA 17404
717-764-0107 Phone
717.764.6027 Fax

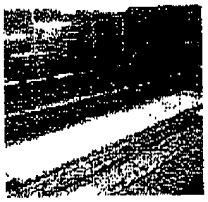
H

Hengshui OK Enterprise Co ltd

Suppliers
Lead No. 12836

Stainless steel wire mesh Five-Heddle Weave





Description

offers Dutch woven wire cloth in Dutch Plain, Dutch Twill, Dutch Reverse, Five-Heddle Weave or other special types to your specific application. A wide range of sizes and specifications for your choice. Dutch woven wire mesh and wire cloth can also be made from different metals and alloys such as Monel, nickel alloy, etc.

Hengshui OK Enterprice Co Ltd
#235 Hengping Road Hengshui City
Hebei Province China
Tel: 86-318-6668848 6611020
Fax: 86-318-2130097 2136097
MSN: salechem@hotmail.com
http://www.materialexport.com

Trade Lead Details

Lead began:	April 12, 2006
Product Name:	Stainless steel wire mesh Five-Heddle Weave
Model No.	003
Country of Origin:	China
Method of Payment:	T/T
Minimum Order:	ANY
Time Before Shipment:	30day
Monthly Production:	hengshuiok

Supplier Information

Lead Number:	12836
Company Name:	**Hengshui OK Enterprise Co ltd**
Contact Person:	Mr. John Ma
Address:	1-501 #235 Heping Road
City:	hengshui
State:	HI
Zip/Postal Code:	053000
Country:	China
Business Phone:	0086-318-6668848
Fax:	0086-318-2130097
Website 1	

Trade Lead Traffic

ANPING WEB WIRE MESH CO., LTD.
www.wiremesh-web.com

E-post | Chinese

Home | About us | Products | Technology | Member | News

Wire | Wire mesh | Wire mesh products

Welcome to web wire mesh

Products Search [ ] Search

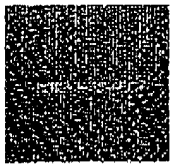
·wire ·Wire mesh ·Wire mesh products

Products

>>Wire mesh >> >>Classified by weave method

Plain weave wire mesh

View Detail

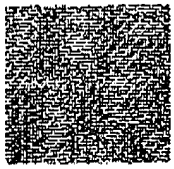


Twill weave wire mesh

View Detail

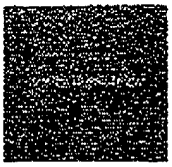
Three-heddle weave wire mesh

View Detail



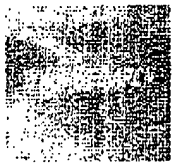
Five-heddle weave wire mesh

View Detail



Eight-heddle weave wire mesh

View Detail

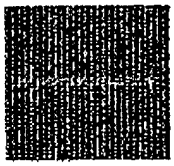


Sixteen-heddle weave wire mesh

View Detail

diamond pattern weave wire mesh

View Detail



Lapped-diamond weave wire mesh

View Detail

Dutch plain weave wire mesh

View Detail

Dutch twill weave wire mesh

View Detail

Dutch plain twist weave

Dutch twill twist weave

Member Login

Member ID: [ ]

Password: [ ]

Submit Login

Forgot your password?

Products Class

Wire

Classified by metal material

Classified by process form

Classified by shape

Classified by used

Deep process of metal wire

Wire mesh

Classified by metal material

Classified by weave method

Classified by shape

Classified by used

Deep process of metals mesh

Wire mesh products

Classified by metal material

Classified by weave method

Classified by shape

Classified by used

Deep process of metals mesh

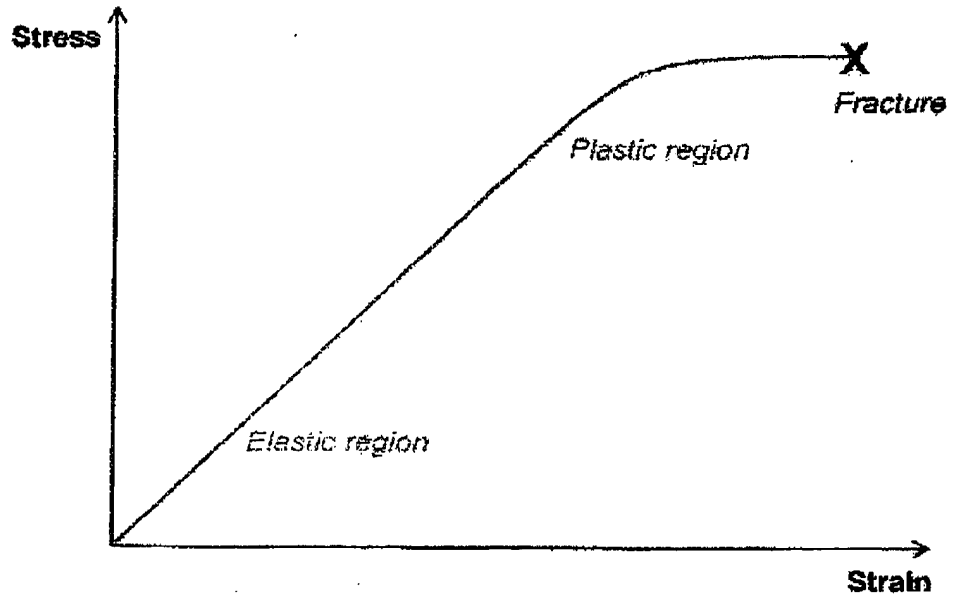
K

Plasticity (physics)

From Wikipedia, the free encyclopedia

In physics and materials science, **plasticity** is a property of a material to undergo a non-reversible change of shape in response to an applied force. Plastic deformation occurs under shear stress, as opposed to brittle fractures which occur under normal stress. Examples of plastic materials are clay and mild steel. In engineering, this is called yield.

For many ductile metals, tensile loading applied to a sample will cause it to behave in an elastic manner. Each increment of load is accompanied by a proportional increment in extension, and when the load is removed, the piece returns exactly to its original size. However, once the load exceeds some threshold (the yield strength), the extension increases more rapidly than in the elastic region, and when the load is removed, some amount of the extension remains. A generic graph displaying this behaviour is below. See also Hooke's law.



Ductile materials can sustain large plastic deformations without fracture. However, even ductile metals will fracture when the strain becomes large enough - this is as a result of work-hardening of the material, which causes it to become brittle. Heat treatment such as annealing can restore the ductility of a worked piece, so that shaping can continue.

In 1934, Egon Orowan, Michael Polanyi and Geoffrey Ingram Taylor, roughly simultaneously, realized that the plastic deformation of ductile materials could be explained in terms of the theory of dislocations.

Some materials, especially those prone to Martensitic transformations, deform in ways that are not well described by the classic theories of plasticity and elasticity. One of the best-known examples of this is nitinol, which exhibits pseudoelasticity: deformations which are reversible in the context of mechanical design, but irreversible in terms of thermodynamics.